Universal Avionics
Vision One Project Update

10/23/02

Project History

- Introduced Product Vision One, August 2000
  - New Product based on technologies developed for TAWS imaging.

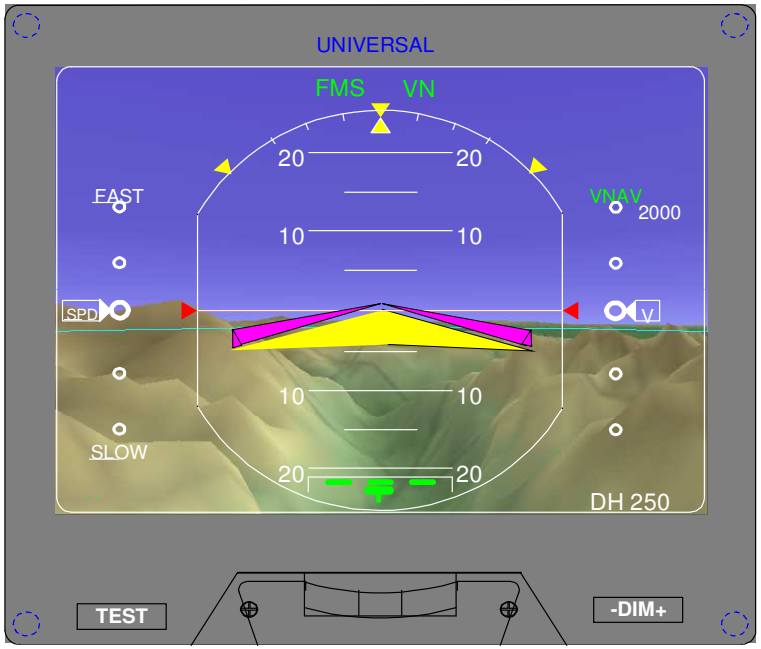
TAWS 3-D Terrain Display

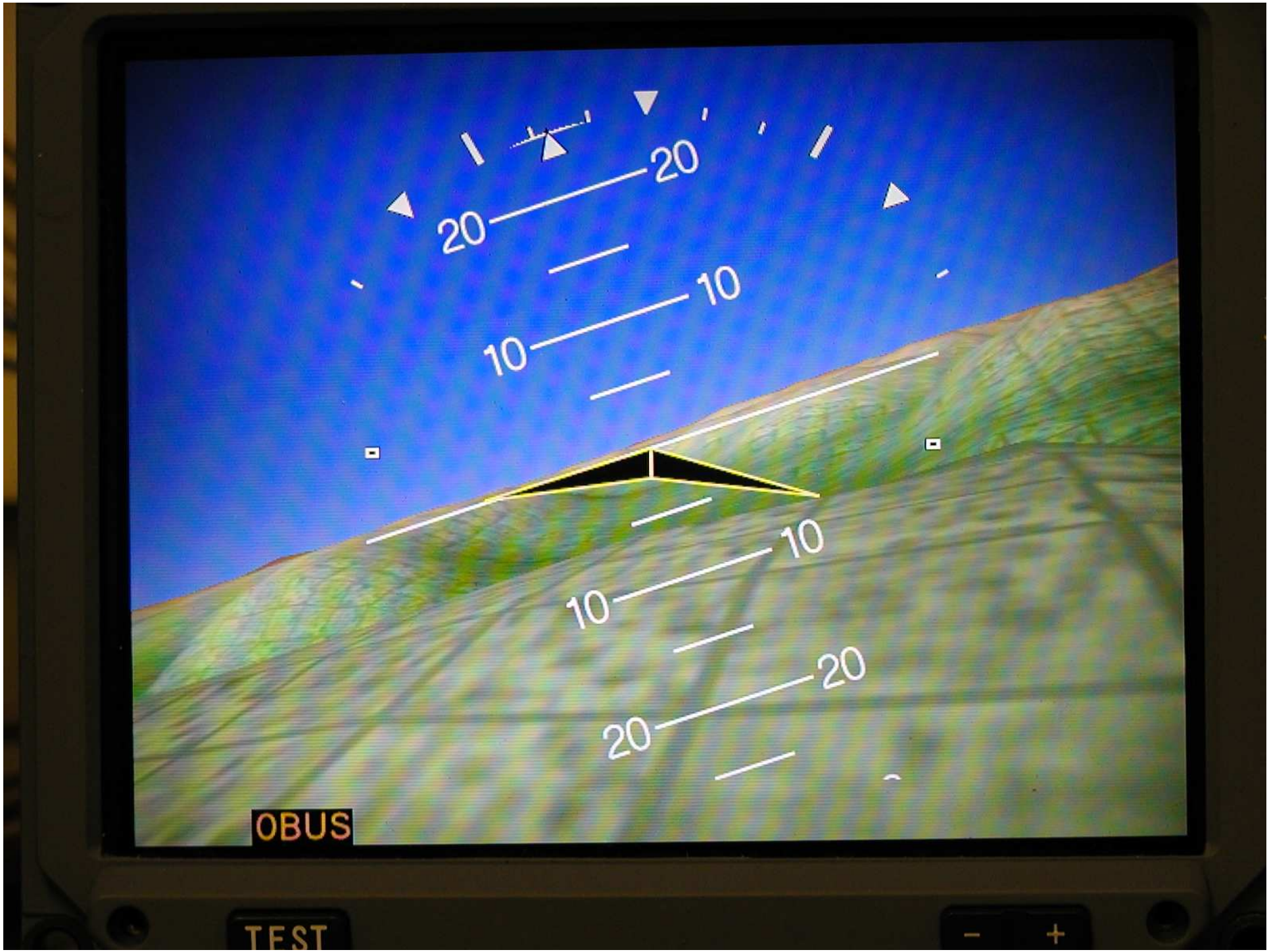
Project History (Cont)

- Developed to increase situational awareness by providing realistic displays of nearby terrain.
- Presented on Universal's VGA capable displays only
- Terrain color scheme patterned after standard sectional charts
- Pilot selectable
- Two display formats planned, offset view(Exocentric) on MFD-640 display, pilot's eye view(Egocentric) on EADI-550 background

Project History (cont.)

- Two views in initial certification project
  - Egocentric view - as looking out the windshield
  - Background Image on ADI

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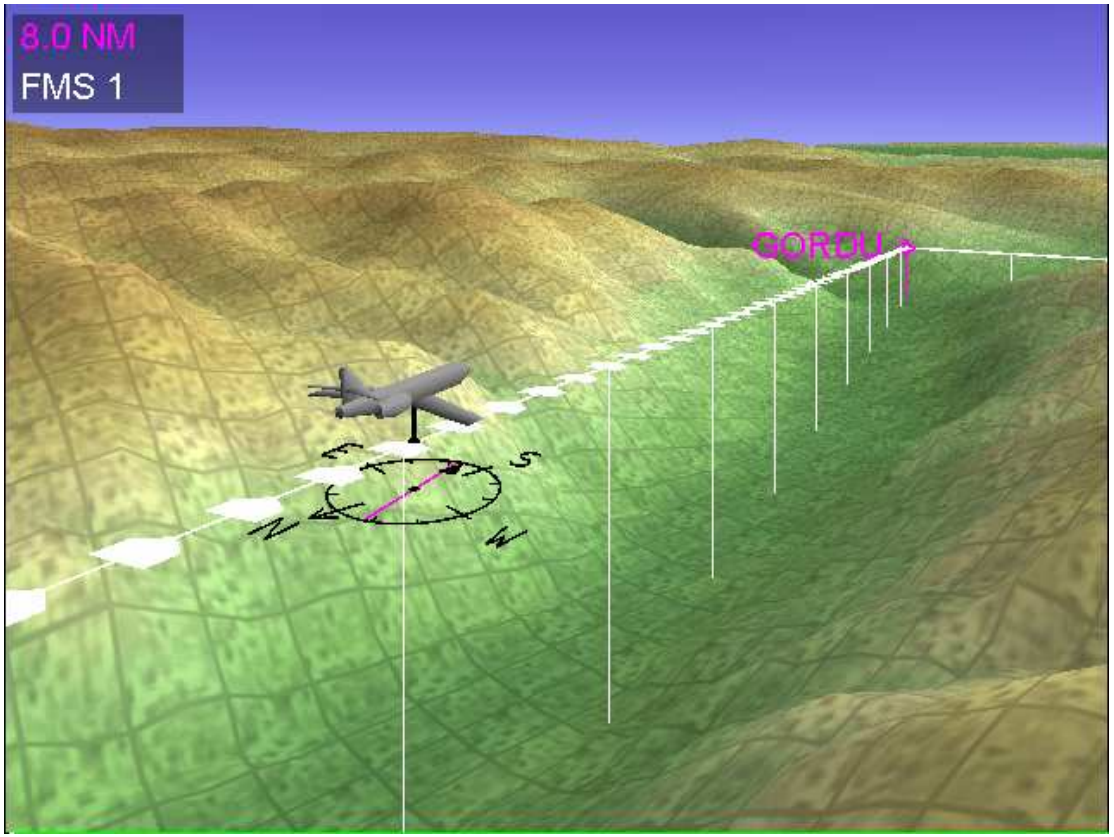
Project History (cont.)

– Exocentric view offset view from above & behind the aircraft rendered on the MFD-640



Project History (cont.)

- Demonstration Flights during FAA Avionics Systems and Flight Test Standardization Workshop, July 2001
- MFD-640 development & support for Vision One outpaced the development of the EADI functions needed for Vision One. This plus several unresolved human factors issues resulted in revision the certification effort.
  - Phase 1 = Exocentric view on MFD-640.
    - Completed April 2002
  - Phase 2 = Egocentric terrain image on the EADI
    - Currently active project.

Vision One Operation

- TERR button on MFD-640 selects:
  - TAWS image on first press
  - Vision One image on second press
  - No Terrain image on third press
- If TAWS pop-up is encountered, MFD always reverts to TAWS 10NM range map view.
- Pressing dedicated Terrain Select switch causes TAWS terrain image to be displayed on MFD-640

Certification Basis and Assessments

- TSO-C113
- STC
  - 14 CFR Part 23 dated February 1, 1965, including amendments 23-1 through 23-50 with no exceptions for the listed FAR's.

Certification Approach

- Vision One not for Navigation
- Terrain databases developed to TSO C151a and DO-200A
- UASC developed tool to validate terrain databases with respect to published approach procedures
- TAWS functions provide independent protection.
  - TAWS pop-up overrides Vision One display
- Installation of TAWS is mandatory